

- (d) if said opposing force exceeds a second predetermined threshold, greater than said first predetermined threshold, stopping said moving and indicating an error condition;
- (e) measuring a distance traveled by said moving transport;
- (f) stopping said moving if said distance traveled equals a difference in distance between said first location and said second location; and
- (g) repeating steps (b) through (f) until said transport is stopped by one of said steps (c), (d), or (f).
2. In a cartridge handling system, a process for moving a transport of said handling system in two directions from a first location to a second location, comprising the steps of:
- (a) starting said moving;
- (b) measuring a force opposing said moving in a Y direction;
- (c) measuring a force opposing said moving in a Z direction;
- (d) if said Y direction opposing force exceeds a first predetermined threshold, stopping said moving;
- (e) if said Z direction opposing force exceeds a second predetermined threshold, stopping said moving;
- (g) if said Y direction opposing force exceeds a third predetermined threshold, greater than said first predetermined threshold, stopping said moving and indicating an error condition;
- (h) if said Z direction opposing force exceeds a fourth predetermined threshold, greater than said second predetermined threshold, stopping said moving and indicating an error condition;
- (i) measuring a distance traveled by said moving transport;
- (j) stopping said moving if said distance traveled equals a difference in distance between said first location and said second location; and
- (k) repeating steps (b) through (j) until said transport is stopped by one of said steps (d), (e), (g), (h) or (i).
3. In a cartridge handling system, apparatus for moving a transport of said cartridge handling system from a first location to a second location, said apparatus comprising:
- means for starting said moving;
- force measuring means for measuring a force opposing said moving;
- first means for halting said moving whenever said force opposing said moving exceeds a predetermined threshold;
- second means for halting said moving whenever said force opposing said moving exceeds an error threshold;
- distance measuring means for determining a distance traveled by said transport; and
- means for halting said moving whenever said distance traveled equals a difference in distance between said first location and said second location; whereby said transport movement is halted if said transport reaches said second location, or said force opposing said movement exceeds said predetermined threshold, or said force opposing said movement exceeds said error threshold.
4. In a cartridge handling system, apparatus for moving a transport of said cartridge handling system in two directions from a first location to a second location, said apparatus comprising:
- means for starting said moving;

- Y force measuring means for measuring a force opposing said moving in a first Y direction of said two directions;
- Z force measuring means for measuring a force opposing said moving in a second Z direction of said two directions;
- first means for halting said moving whenever said force opposing said moving in said Y direction exceeds a predetermined Y threshold;
- second means for halting said moving whenever said force opposing said moving in said Z direction exceeds a predetermined Z threshold;
- third means for halting said moving whenever said force opposing said moving in said Y direction exceeds a Y error threshold;
- forth means for halting said moving whenever said force opposing said moving in said Z direction exceeds a Z error threshold;
- distance measuring means for determining a distance traveled by said transport; and
- means for halting said moving whenever said distance traveled equals a difference in distance between said first location and said second location.
5. In a cartridge handling system having a control system for moving a transport of said cartridge handling system, apparatus for halting said movement comprising:
- means for calculating a force being exerted by a motor of said control system;
- first comparing means for comparing said force to a first predetermined values.
- completion means responsive to said comparing means for halting said moving whenever said force exceeds said first predetermined value, and for indicating a normal completion;
- second comparing means for comparing said force to a second predetermined values.
- error means responsive to said second comparing means for halting said moving whenever said force exceeds said second predetermined value, and for indicating an error condition.
6. In a cartridge handling system having a Y control system and a Z control system for moving a transport of said cartridge handling system, a method for causing said transport to translate between first and second columns of said cartridge handling system, said method comprising the steps of:
- (a) activating said Y control system and said Z control system to move said transport to a translate position thereby activating a lateral displacement latch of said cartridge handling system;
- (b) altering a control system gain of said Z control system to a gain predetermined for a translate operation, whereby said control system gain is adjusted for inertia and resistance;
- (c) moving said transport using said Z control system until a predetermined opposition force is encountered; and
- (d) maintaining said opposition force using said Z control system while moving said transport away from said translate position using said Y control system thereby deactivating said lateral displacement latch.
7. In a cartridge handling system having a Y control system and a Z control system for moving a transport of said cartridge handling system, a method for causing said transport to retrieve a cartridge stored in said car-